

Crash Involvement of Teenaged Drivers When Driver Education Is Eliminated from High School

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Abstract: In 1976, Connecticut eliminated state funding for high school driver education and nine school systems dropped the courses from their high school curricula. This research examined the effect of this action on overall licensure of 16-17 year old drivers in communities that dropped the course to those in similar sized communities that retained the driver education course using local funds. Substantial reductions in the numbers of 16-17 year olds who became li-

censed occurred in the communities that dropped the course. As a result, the numbers of crashes involving 16-17 year olds resident in such communities were also substantially reduced. The conclusion of previously reported research that high school driver education is a major contributor to earlier licensure and accompanying crash involvement of the 16-17 year old population is supported by this additional evidence. (*Am J Public Health* 70:599-603, 1980.)

The effect of high school driver education on crash involvement of teenaged drivers has usually been measured in terms of crashes per licensed driver. Studies comparing drivers who took the course voluntarily with drivers licensed without the course found fewer crashes per licensed driver among the former group.¹ However, statistical controls for miles driven, high school grades, and personality characteristics reduced the difference in crash involvement between those who did and those who did not take the course.^{2,3} This finding suggested that the factors which influenced whether or not the students took the course also influenced how much and/or how well they drove subsequently, and that driver education had little or no effect on the subsequent crash involvement per licensed driver.

More recent research has found that high school driver education produces a net harmful effect because it leads to increased numbers of licensed teenagers, which in turn increases the total crashes for that age group. An experiment in England found no difference in subsequent crash involvement per miles driven between 16-17 year old students assigned to take the course in school and same aged students from whom the course was withheld. However, there were more subsequent crashes per person among the students who took the driver education course because more of them drove earlier than those in the control group.⁴

In the United States, a study of the experience of 27 states for several years found no relationship between the fatal crashes per 10,000 licensed 16-17 year old drivers in a state and the proportion of 16-17 year old licensed drivers in that state who had completed a driver education course in

high school. However, the proportion of 16-17 year olds in each state that was licensed was strongly related to the proportion of the population of that age that completed a high school driver education course. In other words, more driver education was related to more licensed drivers. The net result was higher fatal crash involvement of 16-17 year old drivers per 16-17 year old population in the states with higher proportions of 16-17 year olds completing high school driver education courses.⁵

Critics of this latter study tended to overlook the results of the English experiment and discounted the U.S. results because they were based on correlations among fatality rates and proportions of teenagers taking driver education rather than comparisons of individuals.⁶ However, data that allow separation of teenagers who had the course and those that did not have recently become available because of the elimination of driver education in some Connecticut high schools, making possible the work here reported.

In 1976-1977 a number of cities, towns, and regions in Connecticut eliminated driver education from their high school curricula following the state legislature's withdrawal of state funds for the program. State expenditures for driver education dropped from \$627,000 in 1975 to zero in the subsequent years.⁷ The research reported here examines the effect of eliminating driver education in these high schools on the numbers of licensed teenagers and the crash involvement of 16-17 year olds for these communities and compares these figures with cities, town, and regions of similar size in the same state that retained driver education in their high schools.

Materials and Methods

In Connecticut a person 16-17 years old cannot be licensed to drive unless he or she has completed high school

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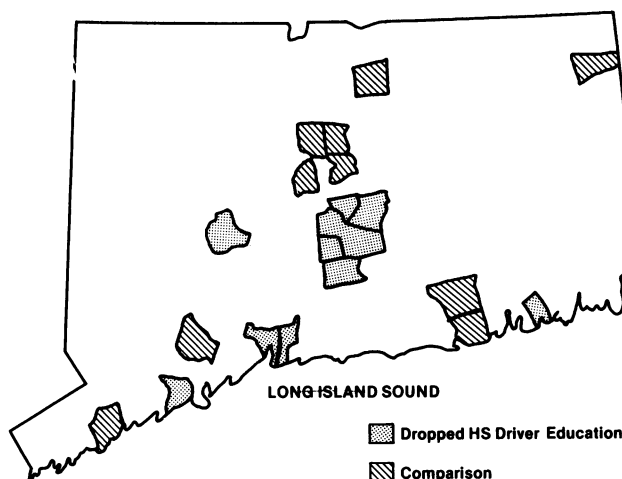


FIGURE 1—Locations of Connecticut Communities that were Studied

driver education or commercial driver training, or presents a certificate signed by a parent, guardian, or spouse more than 18 years old that the applicant has been trained to drive by the older person.⁸

In 1975-76 and 1976-77, eight Connecticut cities and towns and one regional school district eliminated the high school driver education program from their high schools because state funds were no longer available.* These communities had a total population of about 509,300 in 1977;⁷ their 16-17 year old population ranged between 18,000 and 18,400 per year during 1975-77, as extrapolated from the 1970 census.⁹

The communities that eliminated high school driver education were compared to communities with similar sized populations that retained their driver education programs using local funds or increasing fees.** The total population in these communities in 1970 was about 458,200; their 16-17 year old population ranged between 16,700 and 17,200 during 1975-77. Most of the communities studied were concentrated in the center of the state, lowering the likelihood of much out-of-state driving in the 16-17 year old age group (Figure 1).

In selecting comparison communities there was no choice in the four largest cities in each group because together they are the eight largest cities in the state with the exception of Stamford, which had no on-the-road training in its high school driver education program and was eliminated for that reason. Each of the remaining comparison communities was selected randomly from all communities that had a population within 3,000 of a given community that had eliminated high school driver education. The total population is

larger by about 50,000 in the communities that eliminated high school driver education because there was a difference of about 50,000 in the population of the four largest cities that eliminated high school driver education (427,500) and the four largest cities that retained the course (375,200). Overall, about 31 per cent of the state's population resided in the communities studied.

Information on the changes in the licensure of 16-17 year olds in the state as a whole was provided to the Connecticut Department of Education by the Department of Motor Vehicles for the academic years 1974-75, 1975-76, and 1976-77. Those data along with data on enrollment in high school driver education courses¹⁰ for those years were made available to the author by the Department of Education.

The Connecticut Department of Motor Vehicles provided a computer tape which contained information on all licensed residents of the communities studied who were 16-17 years old at any time during the period 1975-1977. Records of reported crashes*** in which 16-17 year old drivers from the study communities were involved were also included, whether the driver was licensed or not. Crash records are not retained for more than three years, making it impossible to obtain pre-1975 data. All crashes anywhere in the state were counted. The computer record for each individual included date of birth, date of issuance of license, date of reported crashes if any, place of residence, and type of driver training.

To measure length of licensure of 16-17 year olds in the most precise way, the dates of birth and licensure data were compared and the number of days licensed between the 16th and 18th birthday in a given year for each person was calculated. These were summed for each type of training in each group of communities for each of the years 1975-1977 and divided in each case by the 16-17 year old population of the communities in the year times 365. This procedure for ob-

*Cromwell, East Haven, Middletown, New Haven, New London, Portland, Waterbury and Region 13 (Durham-Middlefield) in the 1975-76 academic year and Bridgeport in 1976-77 academic year.

**The comparison communities were East Windsor, Hartford, New Britain, Norwalk, Putnam, Shelton, West Hartford, Wethersfield, and Region 18 (Lyme and Old Lyme).

***Crashes in which there was personal injury or property damage in excess of \$400.

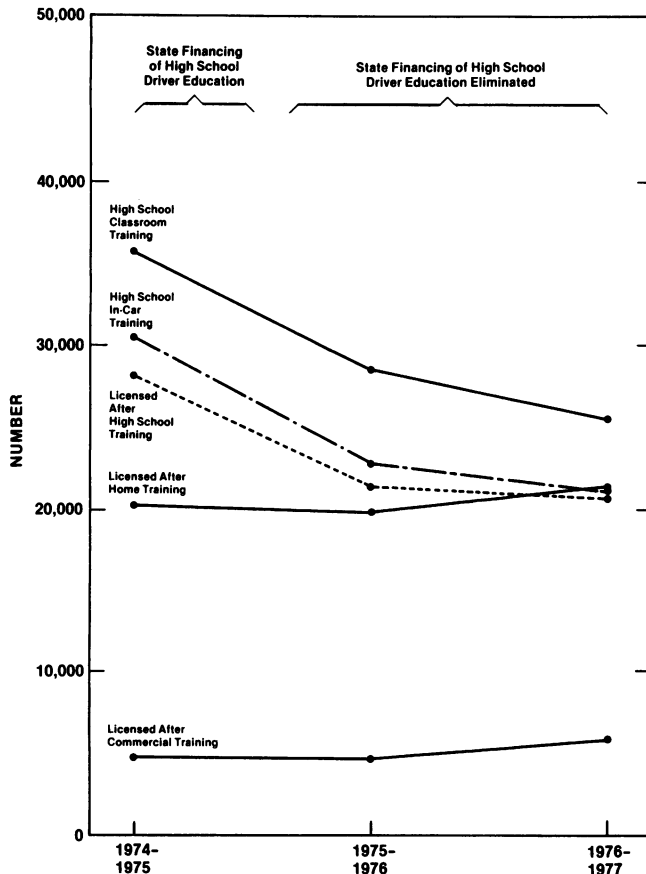


FIGURE 2—Numbers of 16-17 Year Olds Taking Driver Training and Numbers Licensed Before and After the Elimination of State Financing for High School Driver Education in Connecticut

taining total years licensed per population in the training and age groups eliminates any possible bias due to difference in the age at which 16-17 year olds with different training were licensed. For example, a bias of this nature might have resulted from a concentration of licensure at the end of a high school course. The crash-involved drivers included anyone from the study communities that was between his or her 16th and 18th birthdays in a given year.

Results

The overall state trend in driver education completions in the academic year before and the two academic years following the elimination of state funding of high school driver education along with accompanying trends in initial licensure associated with high school, home and commercial training is presented in Figure 2.[‡] If all those who are licensed after high school driver education had been licensed via some other channel, there would have been an increase in

[‡]Where high school driver education was combined with commercial or home training, the training was counted as high school. Combined training accounted for a maximum of 6 per cent of licenses in a given year.

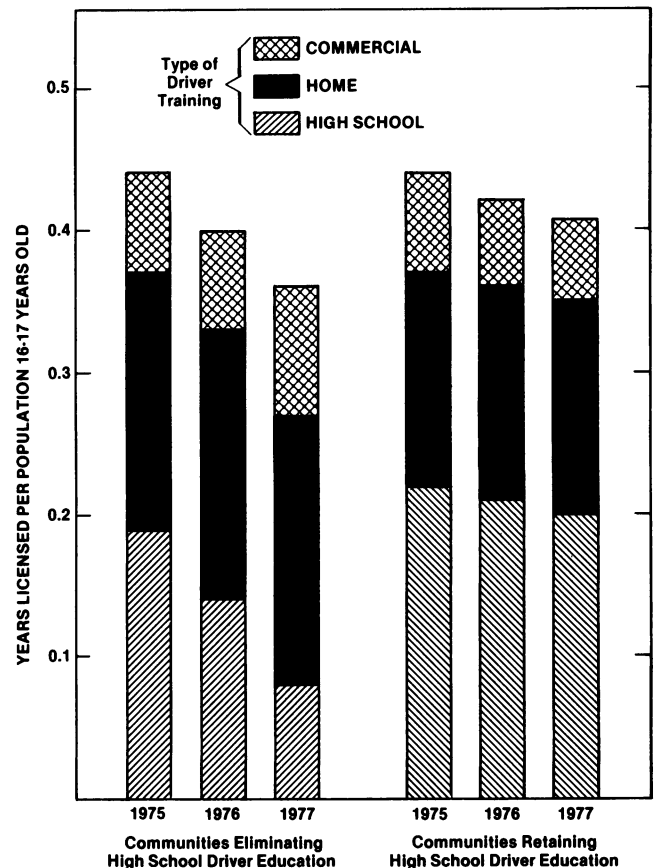


FIGURE 3—Years Licensed per Population of 16-17 Year Olds in Connecticut Before and After Driver Education Was Eliminated in Selected High Schools

licensure after home training and commercial training sufficient to offset the decline in high school training. This did not occur. The number of students completing the full high school course (classroom and in-car) declined by some 9,400 students during the three-year period, and licensure after completing the high school course declined in parallel by 7,580 new licenses. Licensure after home training declined in 1975-76 but increased by 959 from 1974-75 to 1976-77. Licensure following commercial training increased by 969 in the same period. There was a net decline of 5,652 new licenses of 16-17 year olds—about 75 per cent of the 7,580 decline in licensure after completing high school driver education.

Drivers 16-17 years old were licensed a total of 43,506 years in the 20 communities selected for special study during 1975-77. Figure 3 displays the years licensed of 16-17 year olds per population of that age in the communities that eliminated high school driver education and the selected comparison communities that retained the courses. The licensed years of 16-17 year olds per population after completing high school driver education decreased by 57 per cent during the three-year period in the communities that eliminated the course, compared to a 9 per cent decrease in the communities that retained the course. The licensed years of 16-17 year olds per population after completing home or com-

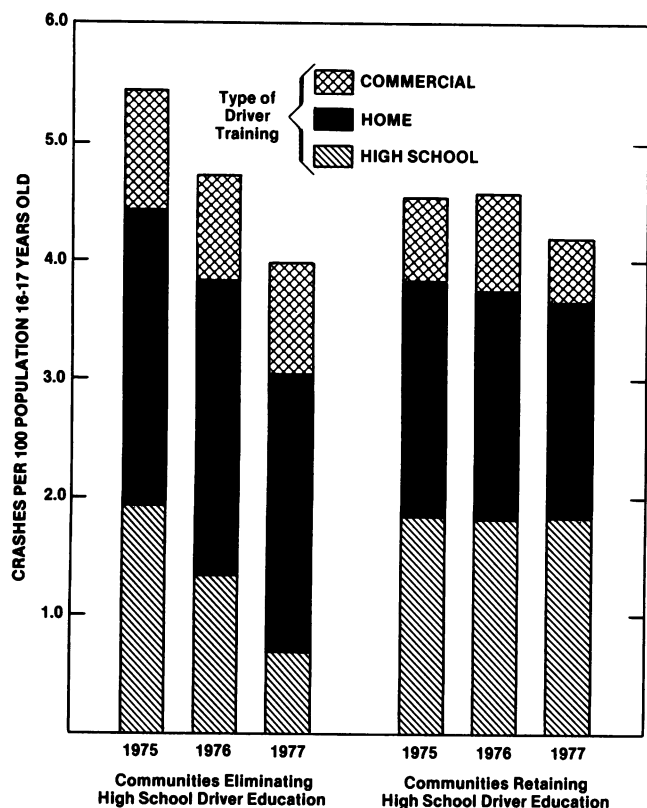


FIGURE 4—Reported Crashes per Population of 16-17 Year Olds in Connecticut Before and After Driver Education Was Eliminated in Selected High Schools

mercial training increased 13 per cent in the communities that retained it from 1975 to 1977.

It should be noted that in 1977 high school trained licensees who were less than 18 years of age on January 1, 1977 still resided in all communities that eliminated the course in 1975, and such licensees less than 17 years of age on January 1, 1977 still resided in Bridgeport, where driver education was not eliminated until mid-1976. Therefore, further declines in years licensed of 16-17 year olds in these communities in subsequent years is to be expected.

During 1975-77, drivers 16-17 years old in the 20 communities were involved in a total of 4,902 reported crashes. The changes in type of training of 16-17 year old drivers involved in serious crashes per 100 population of that age are presented in Figure 4. In communities that eliminated high school driver training the reported crashes per overall 16-17 year old population taking the training decreased 63 per cent from 1975 to 1978, compared to no change in communities that retained the course. Home trained and commercially trained 16-17 year olds had an 8 per cent reduction in such crash rates in the communities that eliminated the course, and a 15 per cent reduction in communities that retained the course during the period. Again, further decline in the communities that eliminated the course is to be expected in subsequent years as the remainder of the 16-17 year olds with high school training reach their 18th birthdays. The number of unlicensed drivers involved in reported crashes per 100

population was too small to be seen on the scale of the crash rate of Figure 4, accounting for 0.05 or fewer crashes per 100 population of 16-17 year olds in each year.

To avoid misinterpretation of the results, it should be emphasized that Figure 4 reflects the effect of each type of training on the proportion of the 16-17 year old population involved in serious crashes. It does not answer any questions regarding an individual's likelihood of crash involvement following a particular type of training. As noted in the introduction, persons who take high school driver education are often found to have fewer reported crashes per licensed driver than persons trained by other means—and this is true in Connecticut—although it is not necessarily the training that makes the difference. It should be evident, however, from comparing Figures 3 and 4 that the overall numbers of crashes involving a particular age group are primarily determined by the proportion of the age group licensed. Rather than the differing crash rates among different groups of licensed drivers, this research addresses the public health and public policy questions of the overall effect of high school driver education on total numbers of crashes involving the 16-17 year-old population.

Discussion

The results of this research indicate that the elimination of high school driver education in some Connecticut communities following the withdrawal of state funding for the course led to a substantial reduction in early licensure of 16-17 year olds to drive and a concurrent substantial net reduction in serious crashes of drivers per population of that age relative to changes in communities that retained the courses. Reductions in the numbers of the age group licensed occurred specifically among those who received high school driver education and there were only small offsetting increases in licensure of those receiving home or commercial training. About 75 per cent of the 16-17 year olds who could be expected to have been licensed if they had taken high school driver education waited until they were 18 or older to be licensed when high school training was no longer available. Crashes of unlicensed drivers were negligible.

These findings are in line with earlier research that found about 80 per cent of 16-17 year olds in 27 U.S. states who were licensed after completing high school driver education would not have been licensed until they were 18 or older in the absence of high school driver education.⁵ Three pieces of research—the British experiment,⁴ the 27 state study, and the research reported here—have now provided the necessary and sufficient conditions for the conclusion that driver education in high schools is a major contributing factor to the early licensure of teenagers to drive and, as a result of this earlier exposure, their increased involvement as drivers in serious crashes. Licensure and crashes increase when driver education is increased; they decline in parallel when driver education is decreased and the changes occur specifically in the high school trained group. No evidence to support a contrary conclusion has been forthcoming.

A major implication of this Connecticut experience is

that the adverse effect of high school driver education is reversible. When the state funding supporting high school driver education was eliminated, reductions in licensure and crash involvement of 16-17 year olds were realized. The similarity in estimates of effects of driver education in the 27 state study and the Connecticut study strongly support a prediction that reductions in licensure and crashes similar to those realized in Connecticut would occur elsewhere as well if high school driver education were eliminated.

The intertwined and more far-reaching issue is whether or not 16-17 year olds should be licensed to drive whatever their training. Many state laws do not allow persons less than 18 years of age to vote, sign contracts, play pinball machines, and the like, and yet persons apparently considered insufficiently mature for such activities are licensed to assume responsibility for operating vehicles that so commonly kill and maim.

In Connecticut, with one of the lower serious crash rates among the states, about one in five drivers licensed to drive on their 16th birthdays will be the driver of a vehicle in a crash causing injury or more than \$400 property damage before their 18th birthdays. Proponents of early licensure have argued that the mobility afforded these young drivers is worth the price. The contention is a subject worthy of far more intelligent public debate and decision than it has thus far received.

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1981 Pharmacy Research Grant Proposals Sought

Research proposals related to institutional pharmacy practice now are being accepted for possible funding through the American Society of Hospital Pharmacists, Research and Education Foundation's Research Grants Program for 1981.

Individual grants of \$1,000-\$2,500 will be awarded to practitioners to be used as seed money to initiate research projects relevant to hospital pharmacy. Grant recipients will be determined by a five-member selection panel on the basis of a written proposal to the Foundation.

The Research Grants Program, approved by the Foundation Board of Directors in 1978, is funded primarily through contributions from ASHP affiliated state chapters and local hospital pharmacy organizations. Deadline for these research grant proposals August 15, 1980.

The research grant proposal should not exceed 10 double-spaced typewritten pages and should include the title of the project and the name, title and affiliation of the author, and introduction describing the project's relevance to hospital pharmacy practice, a review of the previously published work in the subject area, a statement of objective, study design and experimental procedures to be used, methods of data analysis, a budget, and a timetable for completion of the project. Six copies of the proposal should be provided. The research grant proposals will be judged on:

- Relevance to and impact on the practice of pharmacy in institutions.
- Originality, clarity of thought and proposed methodology to carry out the project.
- Probability of successful completion of the project and subsequent preparation of a report suitable for publication in a referred professional journal.

For more information, contact: Ronald J. Sanchez, ASHP Research and Education Foundation, 4630 Montgomery Ave., Washington, DC 20014.